

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently amended): A method for determining the density variations of a material on a multi-layer printed circuit board, the method comprising:

forming a grid system on each layer in the multi-layer printed circuit board;

determining the area occupied by the material in each grid element, each grid element having unique grid system co-ordinates of the grid system, on each of the layers in the multi-layer printed circuit board; ~~and~~

computing a measure of the density from the area of the material, in grid elements, in at least two of the layers in the multi-layer printed circuit board;

adding the area occupied by the material in each grid element in neighbor layers having the same grid system co-ordinates to obtain a sum area; and

determining an average of the sum area over all grid elements.

Claim 2 (Original): The method according to claim 1, wherein the material includes copper (Cu).

Claim 3 (Original): The method according to claim 1, wherein said each grid element is rectangular.

Claim 4 (Canceled)

Claim 5 (Currently amended): The method according to claim [[4]] 1, further including the step of dividing the sum area with the average of the sum area over all grid elements to compute the measure of the density of the material for said multi-layer printed circuit board.

Claim 6 (Original): The method according to claim 5, further including the step of generating a contour map showing the variation in the measure of the density of the material on the multi-layer printed circuit board.

Claim 7 (Currently amended): The method according to claim [[4]] 1, further including the step of predicting a defect in the multi-layer printed circuit board from the measure of the density of the material.

Claim 8 (Currently amended): A method for predicting a defect on a multi-layer printed circuit board, the method comprising:

- forming a grid system on each layer in the multi-layer printed circuit board;
- determining the area occupied by the material in each grid element, of the grid system, on each of the layers in the multi-layer printed circuit board;
- computing a measure of the density from the area of the material, in grid elements, in at least two of the layers in the multi-layer printed circuit board;
- predicting a defect in the multi-layer printed circuit board from the measure of the density of the material;
- adding the area occupied by the material in each grid element in neighbor layers having the same grid system co-ordinates to obtain a sum area; and
- determining an average of the sum area over all grid elements.

Claim 9 (Canceled)

Claim 10 (Currently amended): The method according to claim [[9]] 8, further including the step of dividing the sum area with the average of the sum area over all grid elements to compute the measure of the density of the material for said multi-layered printed circuit board.

Claim 11 (Original): The method according to claim 10, further including the step of generating a contour map showing the variation in the measure of the density of the material on the multi-layer printed circuit board.

Claim 12 (Currently amended): The method according to claim [[9]] 8, wherein the material includes copper (Cu).

Claim 13 (Currently amended): The method according to claim [[9]] 8, wherein said each grid element is rectangular.

Claim 14 (Currently amended): A system for determining the density variations of a material on a multi-layer printed circuit board, the system comprising:

- means for forming a grid system on each layer in the multi-layer printed circuit board;
- means for determining the area occupied by the material in each grid element, of the grid system, on each of the layers in the multi-layer printed circuit board; ~~and~~
- means for computing a measure of the density from the area of the material, in grid elements, in at least two layers of the multi-layer printed circuit board;
- means for adding the area occupied by the material in the each grid element in neighbor layers having the same co-ordinates to obtain a sum area; and
- means for determining an average of the sum area over all grid elements.

Claim 15 (Original): The system according to claim 14, wherein the material includes copper (Cu).

Claim 16 (Original): The system according to claim 14, wherein said each grid element is rectangular.

Claim 17 (Canceled)

Claim 18 (Currently amended): The system according to claim [[17]] 14, further including means for dividing the sum area with the average of the sum area to compute the measure of the density of the material for said multi-layer printed circuit board.

Claim 19 (Original): The system according to claim 18, further including means for generating a contour map showing the variation in the measure of the density of the material on the multi-layer printed circuit board.

Claim 20 (Currently amended): The system according to claim [[17]] 14, further including means for predicting a defect in the multi-layer printed circuit board from the measure of the density of the material.